CLAIMS

1 A method of reception, comprising:

2 forming a first beam to cover a region;

detecting a signal in the region using the first beam; and

4 forming a second beam to receive the detected signal.

2 The method of claim 1 wherein the coverage of the region
2 comprises sweeping the first beam across the region.

3 The method of claim 1 wherein the coverage of the region
2 comprises moving the first beam to a plurality of different locations within the region.

4 The method of claim 1 wherein the formation of the first beam
2 comprises forming a plurality of beams to cover the region.

5 The method of claim 1 wherein the formation of the first beam
2 comprises forming an omni-directional beam.

6 The method of claim 1 further comprising detecting a second signal
2 in the region using the first beam, and wherein the formation of the second beam comprises forming the second beam to receive both the signal and the second
4 signal.

7 The method of claim 6 wherein the formation of the second beam further comprises forming a plurality of beams, one of the plurality of beams receiving the signal and a second one of the plurality of beams receiving the second signal.

8 The method of claim 6 wherein the formation of the second beam further comprises forming a shape of the second beam to receive both the signal and the second signal.

9 The method of claim 1 further comprising adjusting the second beam to track the detected signal.

10 The method of claim 9 wherein the adjustment of the second beam comprises moving the second beam.

11 The method of claim 9 wherein the adjustment of the second beam comprises changing a shape of the second beam.

12 The method of claim 1 wherein the formation of the first beam comprises receiving energy through a plurality of spatially separated elements, applying a weight to the received energy from each of the elements, and combining the weighted energy.

13 The method of claim 12 wherein the weight applied to the received energy from each of the elements is different.

14 The method of claim 12 wherein the formation of the second beam comprises receiving the energy through a second plurality of spatially separated elements, applying a second weight to the received energy from each of the second plurality of elements, and combining the second weighted energy, the second weight being a function of the weight applied to form the first beam.

15 The method of claim 14 wherein the second weight applied to the received energy from each of the second plurality of elements is different.

16 The method of claim 14 further comprising tracking the signal by adjusting the second weight applied to the received energy from each of the second plurality of elements.

17 The method of claim 16 wherein the tracking of the signal comprises moving the second beam to a plurality of locations by adjusting the second weight applied to the received energy from each of the second plurality of elements, and fixing the second beam in the location having the highest energy level.

18 A receiver system, comprising:

an antenna configured to form first and second beams; and

a processor configured to control the antenna to search for a first signal with the first beam and to receive a second signal with the second beam.

19 The receiver system of claim 18 wherein the antenna is further configured to form the first beam as an omni-directional beam.

20 The receiver system of claim 18 wherein the antenna is further configured to form a plurality of first beams.

21 The receiver system of claim 18 wherein the processor is further configured to control the antenna to search for the first signal by sweeping the first beam across a region.

22 The receiver system of claim 18 wherein the processor is further configured to control the antenna to search for the first signal by moving the first beam to a plurality of different locations within a region.

23 The receiver system of claim 18 wherein the processor is further configured to control the antenna to track the second signal.

24 The receiver system of claim 23 wherein the processor is further configured to control the antenna to track the second signal by moving the second beam.

25 The receiver system of claim 23 wherein the processor is further configured to control the antenna to track the second signal by changing a shape of the second beam.

26 The receiver system of claim 18 wherein the antenna comprises a plurality of spatially separated elements.

27 The receiver system of claim 26 wherein the elements comprises first and second groups, the first group configured to form the first beam and the second group configured to form the second beam.

28 The receiver system of claim 27 wherein the processor further comprises a filter configured to apply a weight to energy received from each of the first group of elements, and combining the weighted energy to form the first beam.

29 The receiver system of claim 28 wherein the filter is further configured to apply a different weight to the received energy from each of the first group of elements.

30 The receiver system of claim 28 wherein the processor further comprises a searcher configured to search for the first signal as a function of the combined weighted energy.

31 The receiver system of claim 30 wherein the processor further comprises a second filter configured to apply a second weight to energy received from each of the second group of elements, and combining the weighted second energy to form the second beam, the second weight applied to the energy received from each of the second group of elements being responsive to the searcher.

32 The receiver system of claim 31 wherein the second filter is further configured to apply a different second weight to the received energy from each of the second group of elements.

33 The receiver system of claim 31 wherein the processor further comprises a demodulator configured to demodulate the combined second weighted energy.

34 The receiver system of claim 33 wherein the second filter is further configured to adjust the second weight applied to the received energy from each of the second group of elements as a function of the demodulated combined second weighted energy.

35 A method of communication, comprising:

transmitting a signal from a base station;

forming a first beam at a remote station to search for the transmitted signal within a region;

detecting the transmitted signal with the first beam in the region; and

forming a second beam at the remote station to receive the signal.

36 The method of claim 35 wherein the search for the signal comprises sweeping the first beam across the region.

37 The method of claim 35 wherein the search for the signal comprises moving the first beam to a plurality of different locations within the region.

38 The method of claim 35 wherein the formation of the first beam comprises forming a plurality of beams to cover the region.

39 The method of claim 35 wherein the formation of the first beam comprises forming an omni-directional beam.

40 The method of claim 35 further comprising transmitting a second signal from a second base station, and detecting the second transmitted signal with the first beam in the region, wherein the formation of the second beam comprises forming the second beam to receive both the signal and the second signal.

41 The method of claim 40 wherein the formation of the second beam further comprises forming a plurality of beams, one of the plurality of beams positioned to receive the signal and a second one of the plurality of beams positioned to receive the second signal.

42 The method of claim 41 wherein the formation of the second beam further comprises forming a shape of the second beam to receive both the signal and the second signal.

43 The method of claim 35 further comprising adjusting the second beam to track the detected signal.

44 The method of claim 43 wherein the adjustment of the second beam comprises moving the second beam.

45 The method of claim 43 wherein the adjustment of the second beam comprises changing a shape of the second beam.

46 The method of claim 35 wherein the formation of the first beam comprises receiving energy through a plurality of spatially separated elements, applying a weight to the received energy from each of the elements, and combining the weighted energy.

47 The method of claim 46 wherein the weight applied to the received energy from each of the elements is different.

48 The method of claim 46 wherein the formation of the second beam comprises receiving the energy through a second plurality of spatially separated elements, applying a second weight to the received energy from each of the second plurality of elements, and combining the second weighted energy, the second weight being a function of the weight applied to form the first beam.

49 The method of claim 48 wherein the second weight applied to the received energy from each of the second plurality of elements is different.

50 The method of claim 48 further comprising tracking the signal by adjusting the second weight applied to the received energy from each of the second plurality of elements.

51 The method of claim 50 wherein the tracking of the signal comprises moving the second beam to a plurality of locations by adjusting the second weight applied to the received energy from each of the second plurality of elements, and fixing the second beam in the location having the highest energy level.

52 A remote station comprising a processor configured to control an antenna to search for a first signal with a first beam and to receive a second signal with a second beam

53 The remote station of claim 52 wherein the processor is further configured to control an antenna to form the first beam as an omni-directional beam.

54 The remote station of claim 52 wherein the processor is further configured to control an antenna to form a plurality of first beams.

55 The remote station of claim 52 wherein the processor is further configured to control the antenna to search for the first signal by sweeping the first beam across a region.

56 The remote station of claim 52 wherein the processor is further configured to control the antenna to search for the first signal by moving the first beam to a plurality of different locations within a region.

57 The remote station of claim 52 wherein the processor is further configured to control an antenna to track the second signal with the second beam.

58 The remote station of claim 57 wherein the processor is further configured to control an antenna to track the second signal by moving the second beam.

59 The remote station of claim 57 wherein the processor is further configured to control an antenna to track the second signal by changing a shape of the second beam.

60 The remote station of claim 52 wherein the processor further comprises a filter configured to receive energy from a plurality of elements of an antenna, apply a weight to the energy received from each of the elements, and combine the weighted energy to form the first beam.

61 The remote station of claim 60 wherein the filter is further configured to apply a different weight to the received energy from each of the elements.

62 The remote station of claim 60 wherein the processor further comprises a searcher configured to search for the first signal as a function of the combined weighted energy.

63 The remote station of claim 62 wherein the searcher comprises a correlator configured to despread a pilot signal, the search for the first signal being a function of the pilot signal.

64 The remote station of claim 62 wherein the processor further comprises a second filter configured to apply a second weight to energy received from each of a second plurality of elements of the antenna, and to combine the weighted second energy to form the second beam, the second weight being a function of the weight applied to form the first beam.

65 The remote station of claim 64 wherein the second filter is further configured to apply a different second weight to the received energy from each of the second plurality of elements.

66 The remote station of claim 64 wherein the processor further comprises a demodulator configured to demodulate the combined second weighted energy.

67 The remote station of claim 66 wherein the demodulator comprises a second correlator configured to despread the second signal.

68 The remote station of claim 67 wherein the second filter is further configured to adjust the second weight applied to the received energy from each of the second plurality of elements as a function of the despread second signal.

69 Computer readable media embodying a method of reception, the method comprising:

forming a first beam to cover a region;

detecting a signal in the region using the first beam; and

forming a second beam to receive the detected signal.

70 The computer readable media of claim 69 wherein the coverage of the region comprises sweeping the first beam across the region.

71 The computer readable media of claim 69 wherein the coverage of the region comprises moving the first beam to a plurality of different locations within the region.

72 The computer readable media of claim 69 wherein the formation of the first beam comprises forming a plurality of beams to cover the region.

73 The computer readable media of claim 69 wherein the formation of the first beam comprises forming an omni-directional beam.

74 The computer readable media of claim 69 wherein the method further comprises detecting a second signal in the region using the first beam, and wherein the formation of the second beam comprises forming the second beam to receive both the signal and the second signal.

75 The computer readable media of claim 74 wherein the formation of the second beam further comprises forming a plurality of beams, one of the plurality of beams receiving the signal and a second one of the plurality of beams receiving the second signal.

76 The computer readable media of claim 74 wherein the formation of the second beam further comprises forming a shape of the second beam to receive both the signal and the second signal.

77 The computer readable media of claim 69 further comprising adjusting the second beam to track the detected signal.

78 The computer readable media of claim 77 wherein the adjustment of the second beam comprises moving the second beam.

79 The computer readable media of claim 77 wherein the adjustment of the second beam comprises changing a shape of the second beam.

80 The computer readable media of claim 69 wherein the formation of the first beam comprises receiving energy through a plurality of spatially separated elements, applying a weight to the received energy from each of the elements, and combining the weighted energy.

81 The computer readable media of claim 80 wherein the weight applied to the received energy from each of the elements is different.

82 The computer readable media of claim 80 wherein the formation of the second beam comprises receiving the energy through a second plurality of spatially separated elements, applying a second weight to the received energy from each of the second plurality of elements, and combining the second weighted energy, the second weight being a function of the weight applied to form the first beam.

83 The computer readable media of claim 82 wherein the second weight applied to the received energy from each of the second plurality of elements is different.

84 The computer readable media of claim 82 wherein the method further comprises tracking the signal by adjusting the second weight applied to the received energy from each of the second plurality of elements.

85 The computer readable media of claim 84 wherein the tracking of the signal comprises moving the second beam to a plurality of locations by

adjusting the second weight applied to the received energy from each of the second plurality of elements, and fixing the second beam in the location having the highest energy level.

86 A receiver system, comprising:

means for forming a first beam through an antenna to search for a first signal; and

means for forming a second beam through the antenna to receive a second signal.

87 The receiver system of claim 86 wherein the means for forming a first beam comprises means for forming the first beam as an omni-directional beam.

88 The receiver system of claim 86 wherein the means for forming a first beam comprises means for forming a plurality of first beams.

89 The receiver system of claim 86 further comprising means for sweeping the first beam across a region.

90 The receiver system of claim 86 further comprising means for searching for the first signal by moving the first beam to a plurality of different locations within a region.

91 The receiver system of claim 86 further comprising tracking means for tracking the second signal with the second beam.

92 The receiver system of claim 91 wherein the tracking means tracks the second signal by moving the second beam.

93 The receiver system of claim 91 wherein the tracking means tracks the second signal by changing a shape of the second beam.

94 The receiver system of claim 86 wherein the means for forming a first beam comprises means for receiving energy from a plurality of elements, means for applying a weight to the energy received from each of the elements, and means for combining the weighted energy to form the first beam.

95 The receiver system of claim 94 wherein the weight applied to the received energy from each of the plurality of elements is different.

96 The receiver system of claim 94 further comprising search means for searching for the first signal as a function of the combined weighted energy.

97 The receiver system of claim 96 wherein the search means comprises means for despreading a pilot signal, the search for the first signal by the search means being a function of the pilot signal.

98 The receiver system of claim 96 the means for forming a second beam further comprising means for receiving energy from a second plurality of elements, means for applying a second weight to energy received from each of a second plurality of elements, and means for combining the weighted second energy to form the second beam, the second weight being a function of the weight applied to form the first beam.

99 The receiver system of claim 98 wherein the second weight applied to the received energy from each of the second plurality of elements is different.

100 The receiver system of claim 98 further comprising demodulation means for demodulating the combined second weighted energy.

101 The receiver system of claim 100 wherein the demodulation means comprises means for despreading the second signal.

102 The receiver system of claim 101 wherein the means for forming a second beam comprises means for adjusting the second weight applied to the received energy from each of the second plurality of elements as a function of the despread second signal.